



Department of  
Theoretical Physics

# THE QUANTUM SPACETIME SEMINAR SERIES

## Massive Particles at Spatial Infinity

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(ICTS)

**Date:** May 22, 2024

**Time:** 3 PM IST

**Venue:** A304

Zoom link shall be shared separately



In asymptotically flat space, the principle of holography of information states that, in a theory of quantum gravity, all operators on future (past) null infinity can be represented near its past (future) boundary. However, massive fields do not have a good limit as one approaches null infinity. In this talk, we will discuss a novel asymptotic limit of massive fields at the blowup of spatial infinity that leads to a well-defined algebra of boundary operators. We will show how the extrapolation-procedure must be improved in the presence of interactions and describe the relationship between the algebra at spatial infinity and the standard "in" and "out" algebra. We show that boundary correlators at spatial infinity are in the class of asymptotic observables studied by Caron-Huot et al. arXiv:2308.02125. We will briefly discuss a conjecture for how holography of information might be generalized to incorporate massive fields.